

Assuring Infection Control in the Pacific:
Maintaining Preparedness for the Next EID

Federal Quarantine and Isolation Authorities Application and Challenges

Dr. Clive Brown,
Chief, Quarantine and Border Health Services Branch
Division of Global Migration and Quarantine

The findings and conclusions in this presentation are those of the author
and do not necessarily represent the official position of the CDC

Which list contains a disease that is not considered federally quarantinable?

- a) TB, novel influenza virus, smallpox, SARS
- b) TB, smallpox viral hemorrhagic fevers, diphtheria
- c) Yellow fever, cholera, plague, SARS
- d) TB, Yellow fever, cholera, measles
- e) SARS, cholera, TB, smallpox

Division of Global Migration and Quarantine

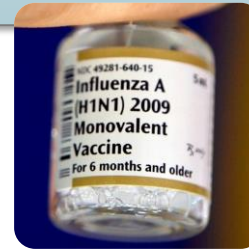
- Mission
- To reduce morbidity and mortality among immigrants, refugees, travelers, expatriates, and other globally mobile populations, and to prevent the introduction, transmission, and spread of communicable diseases through regulation, science, research, preparedness, and response.



Quarantine and Border Health Services Branch (QBHSB) Mission

Protecting the public's health at U.S. borders and beyond
QBHSB supports this mission by:

- *Preparing for response to communicable diseases*
- *Enhancing federal, state/territorial, international, and industry partnerships*
- *Enforcing public health regulations*
- *Responding to travel-related communicable diseases*
- *Supporting public health at international borders*

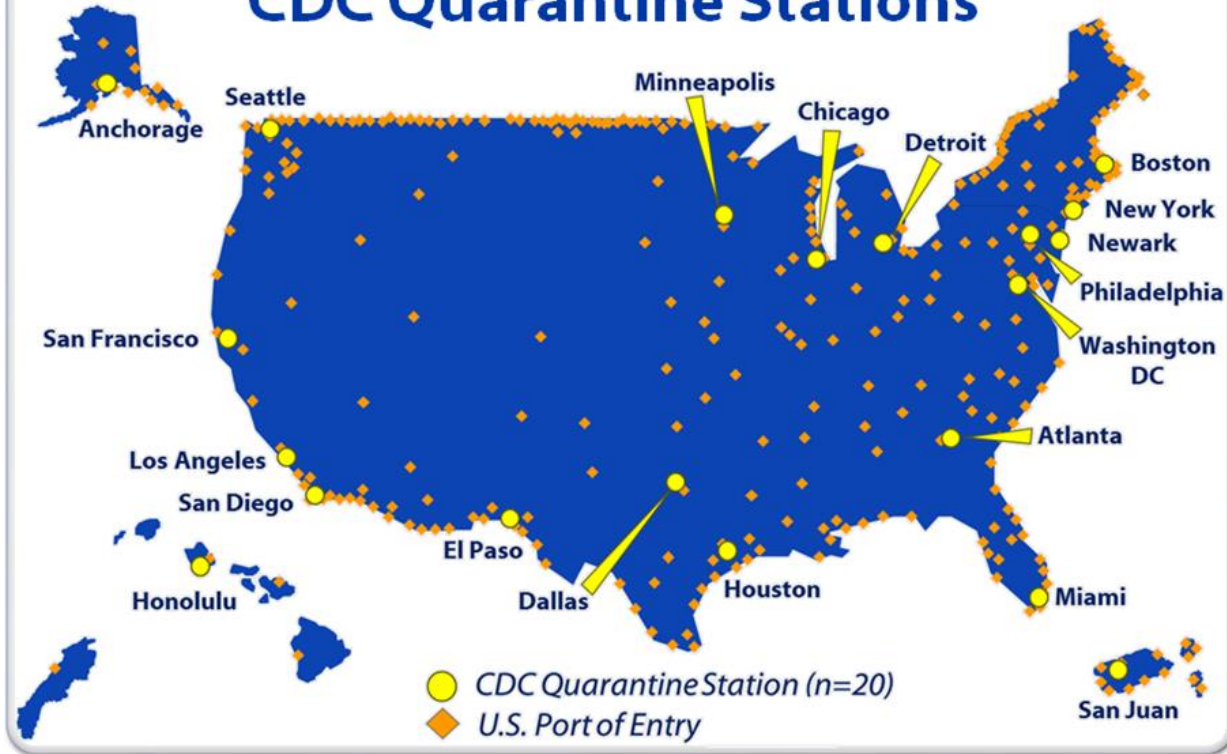




U.S. Passenger Entries

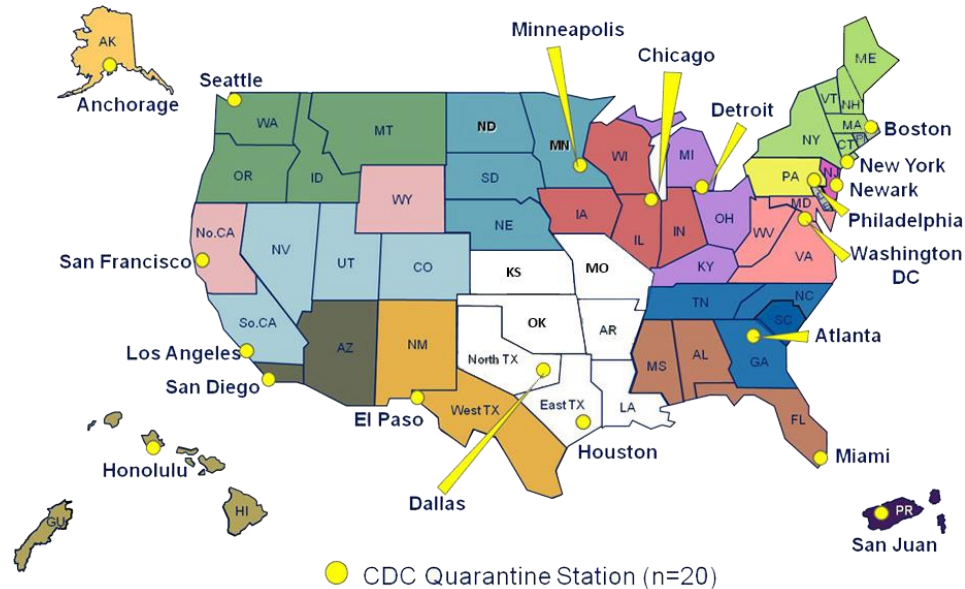
- Land Border Crossings:
 - >237 million
- International Air:
 - >108 million
- Maritime:
 - > 11 million cruise passenger embarkations

US Ports of Entry and CDC Quarantine Stations



For more information: <http://www.cdc.gov/quarantine>

CDC Quarantine Stations Jurisdiction



**Quarantine Branch Teams and Quarantine Stations work 24/7 (on-call)
in close coordination with local public health, emergency first
responders, law enforcement (federal and local), and aviation sector
partners**

Partnerships

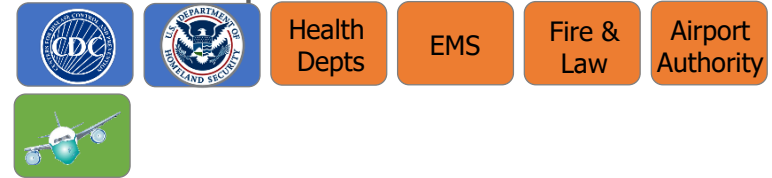


Partnership Examples:

■ Port Preparedness



■ Illness Response



■ Aircraft Drinking Water Rule



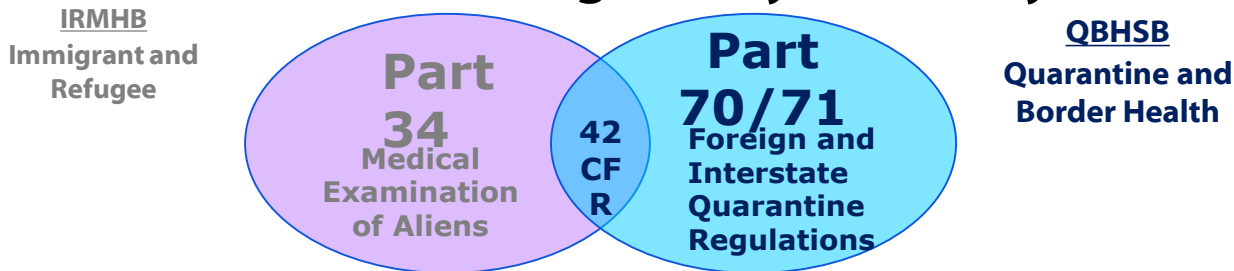
■ Occupational Health and Safety



■ Food Service on Flights



CDC/DGMQ Regulatory Authority



- **Legal authority*** to make and enforce regulations to prevent the introduction, transmission, or spread of communicable diseases from foreign countries into the United States and when traveling between states.
 - Authorizes apprehension, detention, examination, or conditional release of individuals suspected of carrying or exposed to communicable diseases identified in the Presidential Executive Order.
 - Issue quarantine and isolation orders for quarantinable diseases†
 - Collect flight, passenger, and airline employee information from flight manifests to conduct public health investigations as needed
 - Restrictions on importation of animals and animal products

*Section 361 of the U.S. Public Health Service Act, Part G, Quarantine and Inspection Regulations, 42 United States Code, Section 264, Parts 70 and 71. Updated Aug 2016

† Quarantinable diseases: Infectious TB, novel influenza causing or having the potential to cause a pandemic, smallpox, severe acute respiratory syndromes, plague, viral hemorrhagic fevers, diphtheria, cholera, and yellow fever.

Quarantinable Communicable Diseases

- **Infectious tuberculosis (TB)**
- **Novel influenza virus (pandemic influenza)**
- **Smallpox**
- **Severe acute respiratory syndromes (e.g., SARS, MERS)**
- **Plague**
- **Viral hemorrhagic fevers (e.g., Lassa fever, Ebola, Marburg)**
- **Diphtheria**
- **Cholera**
- **Yellow fever**

**Designated through Executive Order* of the President
based on the recommendation of the HHS Secretary**

*Presidential Executive Order 13295, April 2003 (Amended April 2005 and July 2014)

Use of Federal Authorities

- Use of federal isolation and quarantine authority is rare:
 - Quarantine order: in 1963, passenger arriving in NYC quarantined for 14 days for suspected smallpox
 - Isolation orders: ~1 per year, mostly for persons with TB.
 - Conditional release
- States have separate broad public health authorities for isolation or quarantine and may use those authorities at their discretion.
 - Federal Regulations do not supersede state or local law unless a conflict with an exercise of Federal authority exists

Then

[illegible]

Case Scenario A

- A City/State health department informs CDC Quarantine station:
 - A 23 year old USC originally from country A presented to hospital with symptoms of cough, fever, hemoptysis and a 20 pound weight loss. CXR showed a cavitation in the LLL; CT scan of chest showed cavitary lesions in apical segment of LLL, nodules in RUL. Sputum smears were 3-4+ for AFB. Real-time PCR confirmed MTB and indicated Rifampin resistance; PSQ testing indicated resistance to both Rifampin, INH, and a fluoroquinolone, supporting a diagnosis of MDR/pre-XDR-TB; confirmed by sputum cultures and drug susceptibility tests.
 - The case has been on appropriate treatment for MDR/pre-XDR TB via DOT and has clinically improved, but is yet to have a negative culture.
 - The HD reports there are indications the person has strong motivation and plans to travel to country A (including making comments of returning for treatment) and is concerned. The case recently missed a DOT appointment and the HD learned that the patient has purchased a ticket to travel to country A.

In Determining how to respond

- ❑ Do we have the regulatory authority?
- ❑ Do we have the tools to respond to these and other situations?
- ❑ How do we balance protecting the public's health and individual civil liberties?
- ❑ Do the tools satisfy IHR for controlling the international spread of diseases of public health importance?
- ❑ How do we ensure the response to public health threats at points of entry is appropriate and coordinated?

Case Scenario A - Summary

- ❑ **A 23 year old USC originally from country A:**
 - **Laboratory documented infectious pulmonary multi-drug resistant/pre-XDR TB**
 - **High risk of commercial airline travel to country A**
 - **Repetitive nonadherence to public health recommendations**

What tools are available to limit the potential for disease exportation?

- a) **Place person in jail**
- b) **Place person on the federal “Do Not Board/Public Health Lookout List”**
- c) **Nothing, we’re powerless**
- d) **Ask the airline to prevent the person from traveling**
- e) **Do a conveyance contact investigation**

Do Not Board (DNB)

This travel restriction prevents people who meet specific criteria from obtaining a boarding pass for any flight arriving in, departing from, or flying within the United States

Does not prevent passengers from boarding ships, trains, or buses

Implemented by Transportation Security Administration (TSA)

Public Health Lookout (PHLO)

This intervention alerts US Customs and Border Protection officers of a person having an issue of public health concern who attempts to enter the United States

Prompts notification to CDC Quarantine Station staff when the person attempts to enter the United States

Implemented by US Customs and Border Protection (CBP)

Do Not Board (DNB)

This travel restriction prevents people who meet specific criteria from obtaining a boarding pass for any flight arriving in, departing from, or flying within the United States

Does not prevent passengers from boarding ships, trains, or buses

Implemented by Transportation Security Administration (TSA)

Public Health Lookout (PHLO)

This intervention alerts US Customs and Border Protection Officers of a person on the DNB who attempts to enter the United States

Prompts notification to CDC Quarantine Station staff when the person attempts to enter the United States

Implemented by US Customs and Border Protection (CBP)

DNB Process: Key Partners

CDC
Quarantine
Stations

Local and
State Health
Departments

Department
of Homeland
Security

Foreign
Public Health
Agencies



Criteria for DNB Addition

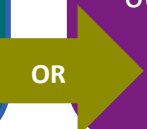
1. Infectious, likely infectious, or at risk of becoming infectious with a serious contagious disease that



2
Nonadherent with public health recommendations, unaware of diagnosis, or unable to be located



3
At risk of traveling on a commercial flight or of traveling internationally



4
Travel restrictions needed to respond to a public health outbreak or to help enforce a public health order

Criterion for DNB Removal

Individual no longer considered to be infectious or
at risk of becoming infectious

DNB/LO Actions, 2011-2016

	TB		Ebola		Lassa		Measles		MERS		Total
	Additions	Removals	Additions	Removals	Additions	Removals	Additions	Removals	Additions	Removals	
2011	49	47	0	0	0	0	0	0	0	0	96
2012	56	38	0	0	0	0	0	0	0	0	94
2013	58	44	0	0	0	0	2	2	0	0	106
2014	36	30	129	128	0	0	0	0	0	0	323
2015	45	34	13	14	16	16	0	0	2	2	142
2016	38	36	0	0	0	0	0	0	0	0	74
Total	282	229	142	142	16	16	2	2	2	2	835

Case Scenario B

- ❑ US-CDC is notified by the US IHR national focal point that the IHR national focal point for a foreign Ministry of Health has told them that a traveler recently flew from a European country to their country and then to the U.S. The passenger was reported to be symptomatic for TB during the time of travel, information about the case and flight are provided for any necessary action, including:
 - Clinic and travel information about the passenger with TB;
 - Information about passengers who were in close proximity of the passenger with TB, i.e. passengers seated either in the same row or within two rows to the front and back of the passenger with TB.

Case Scenario B - Summary

- ❑ US-CDC notified by a foreign Ministry of Health about a passenger with TB who traveled by air and is now in the U.S. and was symptomatic during travel.

What tools are available to limit spread of the disease?

- a) Place person in jail (they should never have traveled)**
- b) Place person on the federal “Do Not Board/Public Health Lookout List”**
- c) Nothing, we’re powerless**
- d) Fine the airline for allowing the person to travel**
- e) Do a conveyance contact investigation**

Purpose of Airplane CIs

In the U.S. we can do conveyance (airplane, ship, other) contact investigations for diseases of public health importance that meet specific criteria.

- ❑ **Limit Secondary Cases and Transmission in Communities**
 - ❑ **Identifying travelers potentially exposed to a communicable disease of public health concern on an airplane**
 - ❑ **Notifying travelers about their potential exposure**
 - ❑ **Evaluating exposed travelers for infection or immunity**
 - ❑ **Providing post-exposure prophylaxis (immunoglobulin, antibiotics, or vaccine) and relevant health education, if indicated**

Diseases Requiring CI

Quarantinable diseases	<ul style="list-style-type: none">• Infectious tuberculosis (TB)• Novel influenza virus• Smallpox• Severe acute respiratory syndromes (e.g., SARS, MERS)• Plague• Viral hemorrhagic fevers (e.g., Lassa fever, Ebola, Marburg)• Diphtheria
Non-quarantinable diseases	<ul style="list-style-type: none">• Measles• Rubella• Meningococcal disease• Pertussis• Rabies• Hepatitis A (flight attendants)

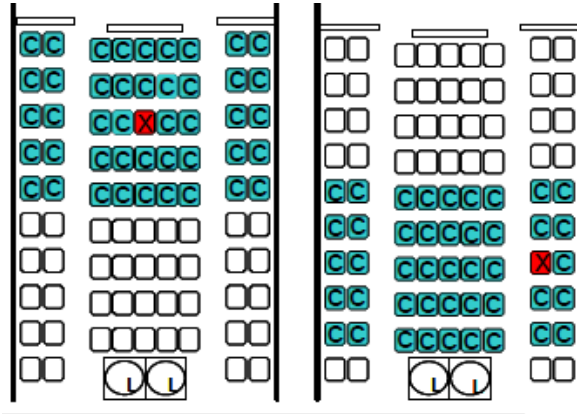
■ **Majority of CIs**

Disease-specific Protocols

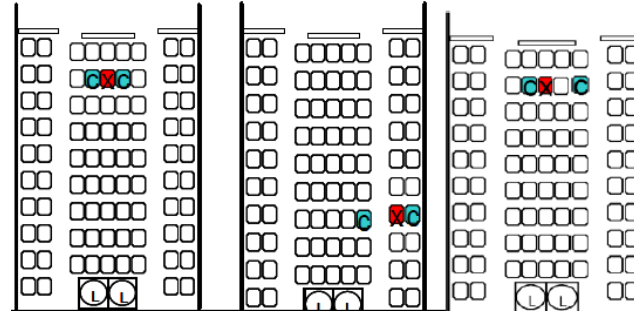
- ❑ **Developed in consultation with CDC subject matter experts**
- ❑ **Developed in advance or in response to emerging threats**
- ❑ **Revised periodically to reflect**
 - Latest knowledge of transmission, diagnosis, and treatment
 - Results of CI protocol analyses (e.g., effectiveness of public health response in terms of cases prevented, cost-benefit)
- ❑ **Adaptable**
 - Contact zone can be changed to reflect specific circumstances (e.g., passenger seat change)
 - Protocol may be used for a different disease without a specific protocol

Defining a Contact: Examples

Measles* / Rubella / TB

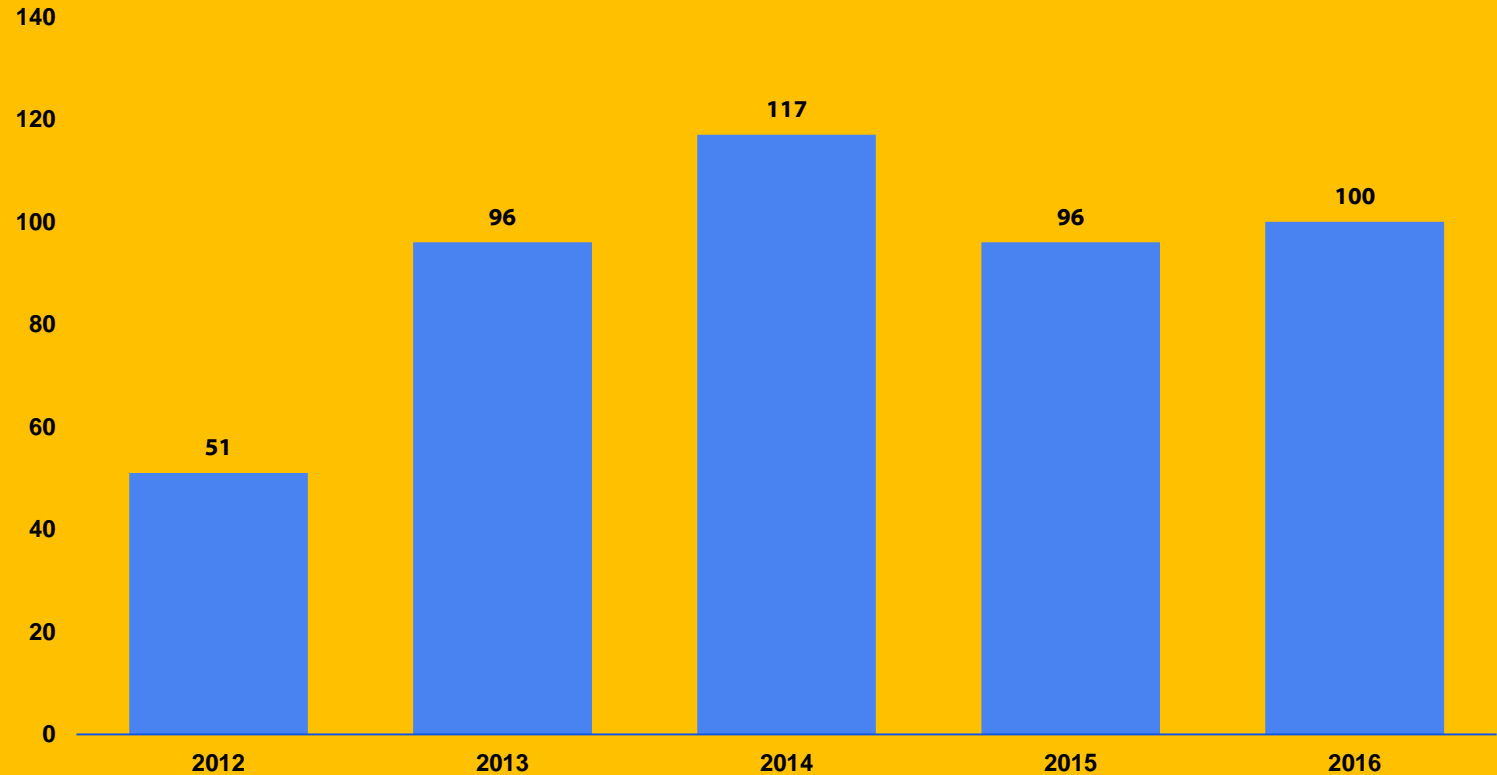


Pertussis



* Also includes all infants-in-arms; for flights with ≤ 50 passenger capacity, includes all passengers and crew.

Air Contact Investigations 2012-2016 Quarantine Activity Reporting System



Identify and analyze public health risk based on assessment of

- Ill travelers; Domestic Event Notification and inflight response
- Animal and cargo importation screenings



Preventive Measures



Planning



Surveillance



Partnerships



Messaging



Illness response



Inspection



Medical Countermeasures

Routine Tools

Border Health Tools: Routine or Global Public Health Emergency Response

- **Risk Communication**
 - Health promotion & health communications to travelers
 - E-monitors, Health Alert Notices, Travelers' Health Notices
 - Health promotion & health communications to partners
 - Guidance to airlines and airport and to maritime partners
- **Risk Assessment**
 - Procedures to Detect Ill Travelers
 - Enhanced border health strategies when appropriate
 - e.g. exit and entry screening
 - Contact investigations
- **Risk Management**
 - Training, Planning, Exercising
 - Federal authorities to restrict travel
 - Enhanced strategies when appropriate

Training - RING Concept

- **RING concept and job aids developed to assist CBP in carrying out these public health functions**

RECOGNIZE

- Potential public health threats at ports of entry

ISOLATE

- Items or people that may represent a potential public health threat

NOTIFY

- CBP Supervisor
- CDC Quarantine Station
- Emergency Medical Services, if life-threatening

GIVE SUPPORT

- To your CDC partners

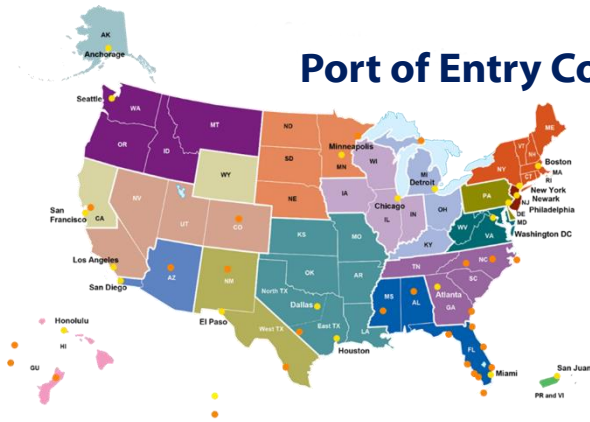
Train Airport Partners to Recognize Public Health Threats at Points of Entry

RING: Customs and Border Protection (CBP)

- ❑ **CBP is a law enforcement organization under the Dept. of Homeland Security**
- ❑ **QBHSB trains CBP to recognize potential public health threats**
- ❑ **CBP:**
 - Notifies CDC of potential public health threats
 - Inspects carriers, cargo, and baggage
 - Enforces entry requirements
 - Enforces detention
 - Assists in securing transportation/escorting
 - Distributes health information to travelers



CBP has >20,000 officers at >300 POE, while CDC has ~60 staff at 18 Quarantine Stations (QS)



Port of Entry Communicable Disease Response Plans (CDRP)



- ❑ Developed for each airport with a collocated Quarantine Station
- ❑ Being developed for selected “sub-ports”
- ❑ Coordinated with federal, state, and local partners associated with facility
- ❑ Plans reviewed and revised annually
- ❑ Exercised biannually
- ❑ FY17:
 - 6 exercises with domestic and international partners
 - Reviewed and updated over 20 CDRPs
 - CDRP development workshop for partners in the U.S. Associated Pacific Islands

Honolulu Communicable Disease Response Plan (CDRP) Workshop

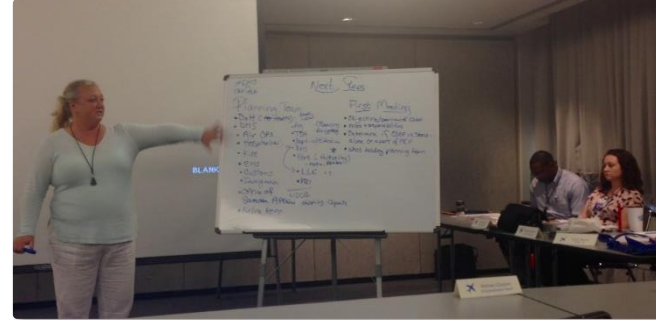
- April 17 – 21, 2017
- Partners from 6 U.S. Affiliated Pacific Islands (USAPIs)
- Provided in-person technical assistance for CDRP development at Air PoEs

- Discussed:

- Existing plans
- Recent responses (Ebola, Zika)
- CDRP templates
- Partners needed for CDRP

development

- Development of CDRPs

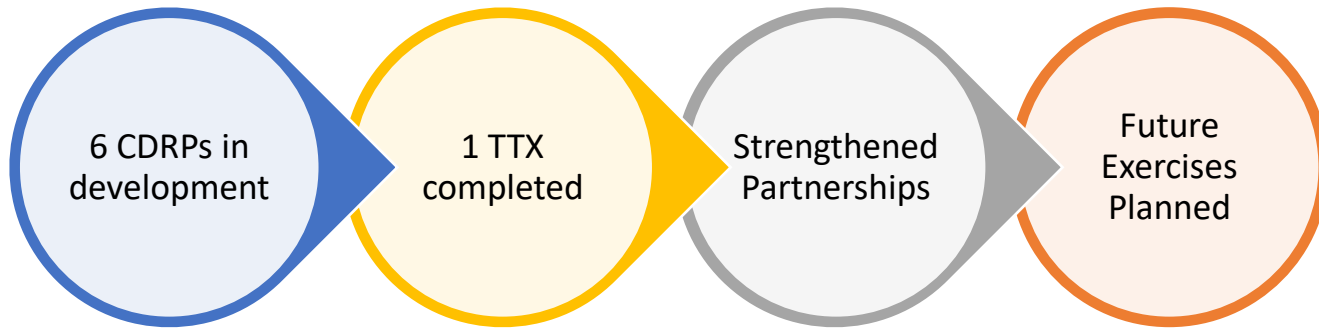


CDRP Development

CDRP development differed for U.S. Territories and Island Nations

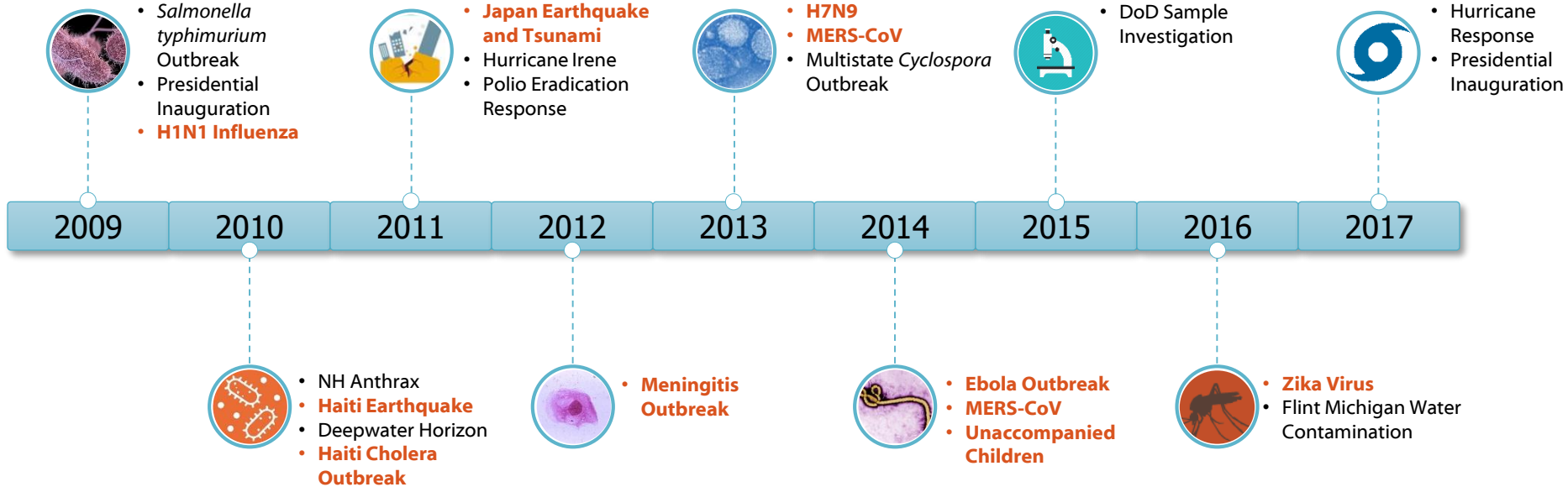
US Territories	Island Nations
Territories are sub ports of HNL QS	Island nations are not sub ports but may receive assistance from HNL QS
Plan outlines how the sub port will coordinate with HNL QS in a public health emergency	Plan is essential for compliance with the International Health Regulations (IHR)
CDC is the lead public health agency for the jurisdiction for responses to public health emergencies	The lead public health agency may differ depending on jurisdiction (usually the Ministry of Health)

Workshop Outcomes



CDC Emergency Responses

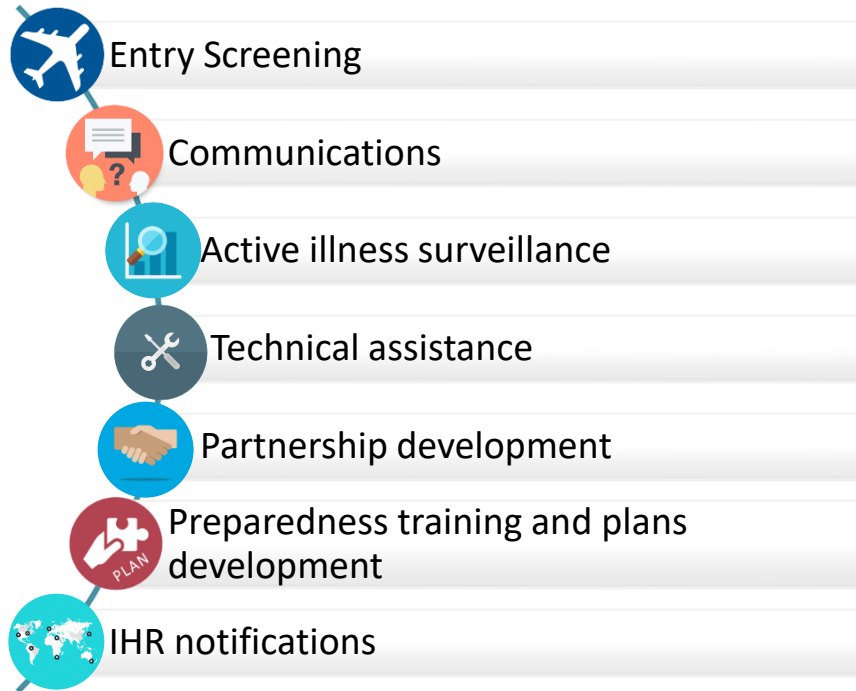
Monkeypox and
SARS (2003)



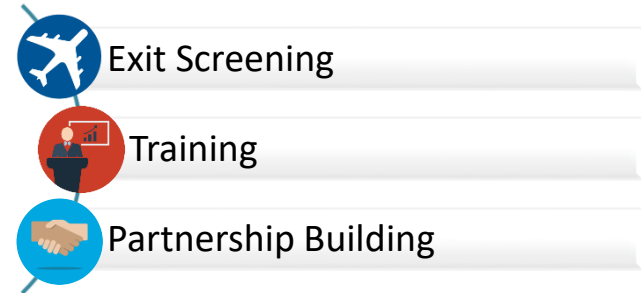
Spotlight Response Scenario: Ebola



Domestic approach



International approach



Ebola - Entry Screening

- Travelers from West Africa routed to one of five airports: ATL, EWR, IAD, JFK, ORD



Primary

All travelers

- Identify travelers who have been in a country with an Ebola outbreak in the past 21 days

Secondary

All travelers who have been in a country with an Ebola outbreak

- Temperature check
- Visual observation
- Health Declaration
- CARE Kit & phone
- CARE Encounter

Tertiary

All travelers who reported Ebola symptoms or risk factors

- In-depth risk assessment
- Evaluation for signs/symptoms
- Repeat temperature check
- CARE Kit & phone
- CARE Encounter

Ebola: Lessons learned



Ebola: layered approach

United States pre-exit



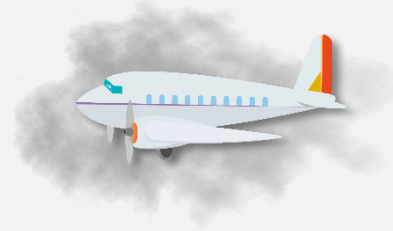
- Travel Health Notices
- Level 3: Avoid non-essential travel

West Africa



- Exit Screening
- Travelers screened prior to boarding
- Symptomatic or exposed travelers not permitted to travel

En Route



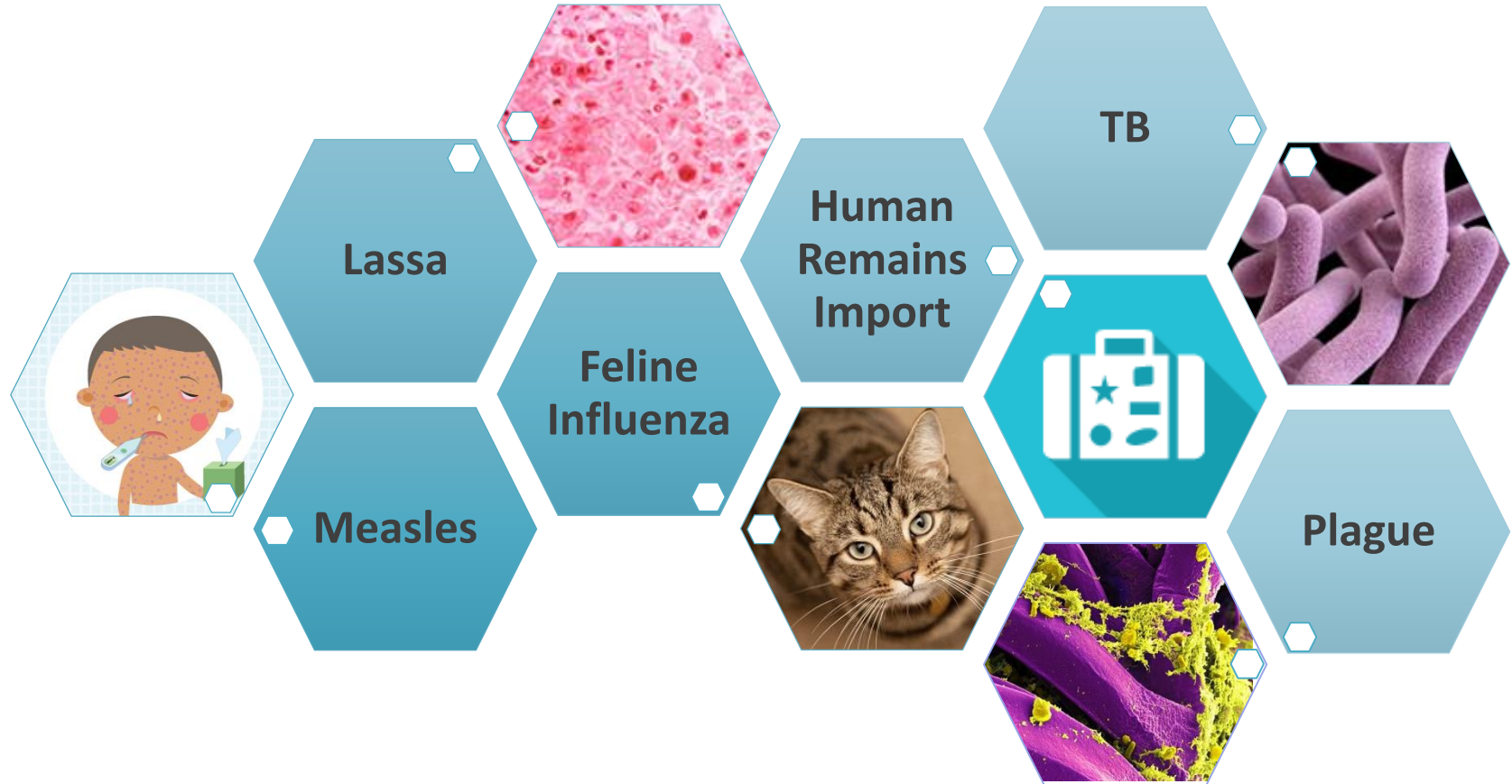
- All aircraft arriving in U.S. required to report deaths onboard and certain signs/symptoms to CDC

United States



- Entry Screening
- Travelers from West Africa routed to one of five airports
- Travelers screened for symptoms and potential exposures and referred for monitoring by SLHD

Other Response Scenarios



Spotlight Scenario: Japan Radiation event, March 2011

- Magnitude 9.0 earthquake and tsunami damaged nuclear reactors at the Fukushima Daiichi complex in Japan, resulting in radionuclide release.
- US officials augmented existing radiological screening at its ports of entry to detect and decontaminate travelers contaminated with radioactive materials.
- Federal officials collaborated with state and local public health and radiation control authorities to enhance screening and decontamination protocols.
- 543 000 (99%) travelers arriving at 25 US airports were screened for radiation contamination; no traveler was detected with significant contamination.
- Highlighted synergistic collaboration across many agencies and leveraged screening methods already in place.
- Example of partnership outside communicable disease lane.



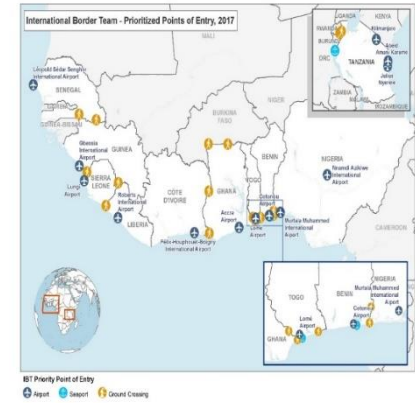
IHR Core Capacities at Points of Entry*

- Access to appropriate medical services with staff, equipment, premises, and diagnostic facilities✓
- Provide appropriate space to interview exposed or affected persons✓
- Access to equipment and personnel for transport of ill travelers to an appropriate medical facility✓
- Establishing arrangements for assessment and care of ill travelers✓
- Provide for the assessment and quarantine of exposed travelers✓
- Access to specially designed equipment and trained personnel for the transfer of travelers who may carry infection or contamination✓
- Establishing and maintaining a public health emergency contingency plan✓
- *Ability to apply entry and/or exit screening controls*✓

44

International Border Team

- Mission: Assist countries and partners to mitigate the international spread of infectious diseases by strengthening country and regional capacity to detect, prevent and respond to infectious threats at points of entry (POEs), along border regions, and among internationally mobile populations
- Pillars:
 1. Point of entry core capacity development to meet International Health Regulation requirements
 2. National public health system strengthening along land borders and among internationally mobile and connected populations
 3. Enhanced regional and global coordination of public health surveillance and response
 4. Emergency response support on exit/entry control measures during a public health emergency with risk for disease exportation



N=12 N=3 N=15

CDC Identified Gaps

Contact Tracing

Info not timely,
complete, accurate

Low response rate:

- Awareness
- Knowledge of regulations
- Cultural uniqueness



Evaluating Interventions

- Unique challenges at each PoE
- Loosely defined outcome parameters



Technology

- Aging technological infrastructure



Training

- Stakeholder knowledge regarding regulations
- Coordination of response operations



Security and Space

- Clearance and access to FIS
- No designated isolation/quarantine facilities at certain PoEs



CDC's DGMQ and QBHSB

- Work 24/7 to Protect the public's health at U.S. borders and beyond
 - Prepare for and respond to travel-related communicable diseases
 - Routine and public health emergencies
 - Enforce public health regulations
 - Variety of border health tools and strategies
 - Risk communication, risk assessment and risk management
 - Partnerships: federal, health departments, international, and industry
 - Gaps remain to be addressed

Acknowledgements

- Preparedness Team: Jon Hill, Braedon Benson and Lee Smith
- Chief Medical Officer: Francisco Alvarado-Ramy and Surveillance Activity
- Travel Restriction and Intervention Activity: Robynne Jungerman
- Training Activity: Lt. Scott Vega, USPHS,
- Air Activity: Rebecca Hall
- Quarantine Station (Operations): Shah Roohi and other Regional Officers in Charge

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

